

KOOLSHADE[®]

SUNSCREEN

**SCREENS OUT
SOLAR HEAT
AND GLARE**



REFLECTAL CORPORATION



a subsidiary of Borg-Warner Corporation
Chicago 4, Illinois

**Solar heat
and glare . . .
the paradox of
modern
architecture**

Today as never before, we live in the era of glass. Increasingly large, increasingly numerous, windows have become the most wanted feature a modern building can have.

Yet herein lies the paradox. Just as the popularity of glass has grown, so too has knowledge of the problems inherent in its use: today, solar heat and glare is a recognized architectural problem.

And this is the important reason for today's sweeping trend to Borg-Warner's KOOLSHADE SUNSCREEN.

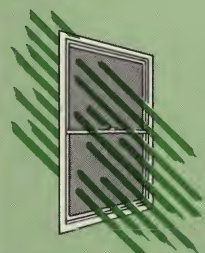
KOOLSHADE is the modern answer to solar heat and glare. By screening out the sun's hot rays, KOOLSHADE enables you to enjoy all the *benefits* of glass . . . with none of its penalties. Hence in windows shaded with KOOLSHADE you have the ultimate in beauty and function!

• previous methods

No other shading device is so efficient as KoolShade . . . or so unobtrusive.



Inside roller shades
Buff type, half drawn—admit 68% of the sun's hot rays (KoolSHADE admits only 11%). Outward visibility, 50%.



Heat absorbing glass
Finest, 1/4" type—admits up to 71% of the sun's hot rays. Shading efficiency, 29% (vs. 89% efficiency for KoolSHADE).



Venetian blinds
Covering full window, slats at 45°—admit 58% of the sun's heat. Almost no visibility (vs. 84% clear outward visibility for KoolSHADE).



Canvas awnings
Admit 29% of the sun's rays (2 1/2 times as much heat admitted as by KoolSHADE). Outward visibility reduced.

For undeviating control

• what KoolShade is



The original solar screening, KOOLSHADE SUNSCREEN is America's precision device for shading windows against solar heat and glare. Operating like a miniature venetian blind installed outside the sun-exposed window, KOOLSHADE intercepts the sun's hot rays *before* they reach the glass.



Design: For utmost efficiency, KOOLSHADE consists of tiny horizontal louvers just 1/20 in. wide and 1/200 in. thick. Locked permanently in place by vertical warp wires spaced 1/2 in. apart, these louvers are spaced and tilted at the exact angle to screen out the maximum amount of solar heat and glare.



Construction: For utmost serviceability, horizontal louvers and vertical warp wires are of nubelon-coated bronze. This electrostatically-sprayed plastic coating assures complete weather resistance. And because genuine KOOLSHADE is woven (not stamped), you get greater strength and resilience . . . along with unmatched outward visibility.

Installation: KOOLSHADE SUNSCREEN is intended for outside installation on all windows and other visual openings subject to excessive solar heat or glare. Installation includes mounting of the screen in KOOLFRAME extruded aluminum frames. Especially designed for KOOLSHADE, these assure proper tension for utmost efficiency, durability and appearance.

• what KoolShade looks like



Actual size view of KoolShade Sunscreen shows dimensional relationship between horizontal louvers (as seen head on) and vertical warp wires. Warp wires are 1/2 in. apart. Louvers, occurring 17 or 23 to the inch, are just 1/20 in. wide and 1/200 in. thick.



Magnified view shows how KoolShade louvers are literally woven in place. By an exclusive manufacturing process, the tough vertical warp wires are tightly twisted around each individual louver. Louvers are locked at the optimum angle for maximum shading efficiency.

of solar heat and glare

KOOLSHADE[®] SUNSCREEN

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• advantages of KoolShade



Keeps interiors up to 15° cooler—By screening out up to 89% of the sun's hot rays, KOOLSHADE keeps interiors up to 15° cooler in summer . . . eliminates solar "hot spots".



Reduces eye-straining glare—Widely used in classroom daylighting, KOOLSHADE moderates sun and sky glare. Screens out direct solar rays to improve lighting balance, minimize fall-off . . . guard against eyestrain.



Saves on air conditioning—KOOLSHADE is the ideal adjunct to air conditioning. By reducing the solar load, KOOLSHADE minimizes air conditioning tonnage requirements, slashes operating costs. (By rule of thumb, 100 sq. ft. of KOOLSHADE reduces cooling load approximately one ton.)



Enhances architectural harmony—Sleek and neat in appearance, KOOLSHADE harmonizes with all types of architecture. Eliminates reflection, introduces uniformity of appearance to all visual openings.



Affords highest outward visibility—Almost invisible from inside your windows, KOOLSHADE permits up to 83% clear outward visibility . . . greater view by far than any comparable shading device.



Balances heating load in winter—By eliminating solar heat gain through windows (the major cause of heating system imbalance), KOOLSHADE assures even heating. With the need for excess thermostat-adjustment thus eliminated, heating plants function more efficiently.



Guards against sun damage—KOOLSHADE eliminates sun-fading of rugs, upholstery and other furnishings. Offers complete sun protection for costly decorative draperies.



Screens out insects—The insect protection afforded by KOOLSHADE is equal to or greater than regular insect screening. No other type of screen is needed.



Virtually maintenance free—The upkeep on KOOLSHADE is negligible since it cannot rust, rattle, rot or corrode. Nubelon coated for greater durability, utmost weather resistance . . . never requires painting.

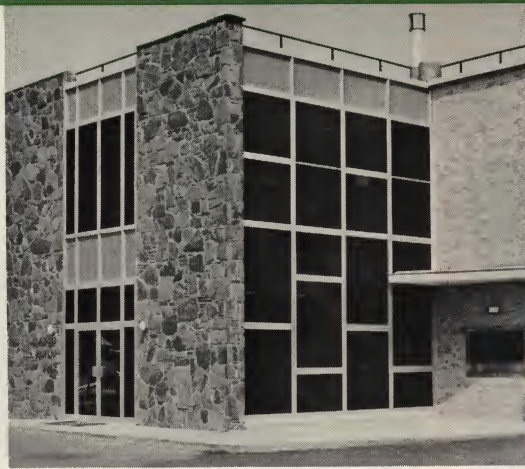


Requires no adjustment—In contrast to other types of shading devices, KOOLSHADE requires no manual adjustment. Its efficiency is constant, undeviating. And control over the amount of heat and glare reduction to be afforded rests squarely with the architect.

• why KoolShade is the professionally-preferred shading device



Franchised application. For warranted performance, installation is made in sturdy KoolFrame extrusions specially designed for KoolShade. Individual screens are engineered to each job, then custom-fabricated and installed by factory-trained personnel.



Unparalleled efficiency. Because KoolShade offers unmatched shading efficiency, supplementary shading devices (such as awnings, venetian blinds, heat-absorbing glass, etc.) are never required. With KoolShade in the original specifications, first cost is always last cost.

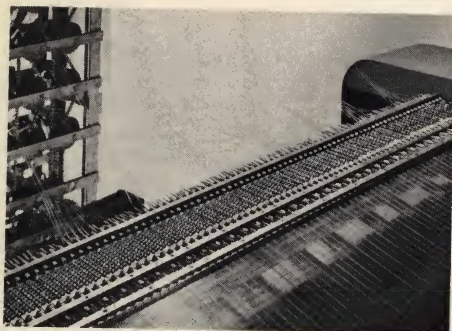


Woven design. Because KoolShade is woven (not stamped), no other solar screening can match its high degree of clear outward visibility (83%). That's because woven design gives you far greater open area than ever possible in a stamped screen.

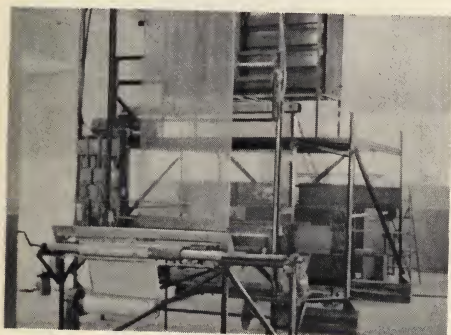


The quality solar screening that's

• construction



1 Weaving. By an exclusive Borg-Warner process, KoolShade screening is woven like a fabric in continuous lengths up to 72" wide. With automatic controls to seek out every possible flaw, as many as 294 verticals at a time are precision-clinched around each KoolShade louver as the "cloth" is woven.



2 Coating. The woven cloth is then electrostatically coated with corrosion-proof nubelon enamel. Specially developed for its extreme weather resistance, this silicone-base enamel is baked on at high temperature for super-hardness. Flexible, too—won't crack, chip or peel. Careful and continuous inspection assures complete and uniform coverage.



3 Framing. Final step is assembly of KoolShade cloth in frames custom-fitted to the window on which the screen will be installed. Using genuine KoolFrame materials (designed exclusively for KoolShade), factory-trained fabricator follows strict framing procedures for peak efficiency and serviceability.

TYPES

KoolShade Type RB

For normal problems of solar heat and glare

KOOLSHADE Type RB is the recommended screen for normal solar problems. The standard KOOLSHADE product, its performance will meet and surpass every shading requirement that can be approached by any comparable device on the market.

Design—KOOLSHADE Type RB consists of paper-thin horizontal louvers secured by tough vertical warp wires spaced on $\frac{1}{2}$ " centers. Just .05" wide and .005" thick, these louvers are

permanently set at an angle of 17° and are spaced approximately 17 louvers to the inch. The effectiveness of this design in blocking solar heat and glare is shown in the Sun Angle diagram below.

Construction—Cloth is woven of highest quality bronze louvers and warp wires, then electrostatically spray-coated with weather-resisting nubelon enamel. (See construction details at left.)

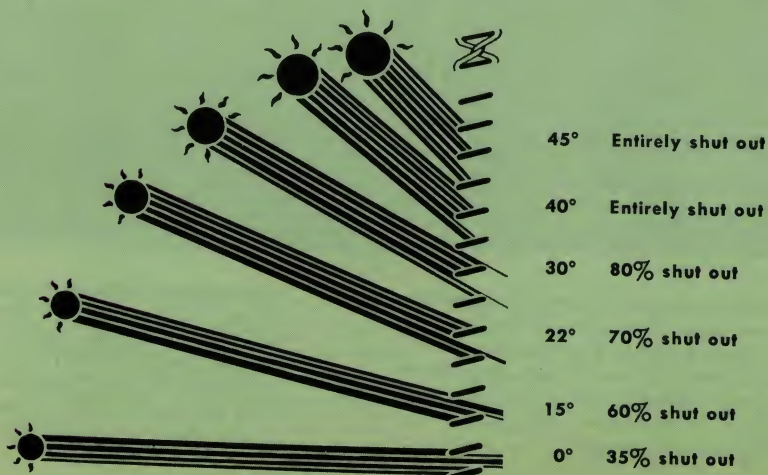
Typical uses—Ideal for all but the most unusual shading problems, Type RB is widely used in commercial, institutional, industrial and residential structures of all sizes and types.

Availability—Prior to being framed to job requirements, continuous-length rolls of KOOLSHADE Type RB are available in various, unbroken widths up to 72". Clear span windows up to 6 ft. wide can thus be accommodated with no splicing, no welding, no vertical bracing of any kind.



High efficiency and moderate price make KoolShade Type RB the preferred solar screening for office buildings, plants, homes, institutions of all types. Design is such that all solar rays are blocked out when the summer sun is highest and hottest.

Sun Angles vs. KoolShade Type RB



woven, not stamped...

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KoolShade Type LSA

For the utmost in shading efficiency

KOOLSHADE Type LSA is an advanced type of screen designed for those installations demanding the highest possible degree of solar control. Delivering up to 50% greater glare-shading efficiency than standard KOOLSHADE, Type LSA extends KOOLSHADE protection through more hours of the day, all seasons of the year!

Design—Similar to Type RB in louver size, warp wire spacing and louver angle. But in Type LSA, louvers are spaced approximately 23 to the inch (as against 17 for Type RB). This provides a sun-eclipse angle of 24°—the optimum angle for maximum solar protection. The additional efficiency of this design is shown in the Sun Angle diagram below.

Construction—Identical in quality to KOOLSHADE Type RB.

Typical uses—The unmatched efficiency of Type LSA makes it the ideal screening for any difficult shading problem. But its extended glare-shading protection particularly suits Type LSA to the daylighting needs of the modern school and hospital.

Availability—Prior to being framed to job requirements, continuous-length rolls of Type LSA are available in various, unbroken widths up to 72". Clear span windows up to 6 ft. wide can thus be accommodated with no splicing, no welding, no vertical bracing of any kind.



Unmatched glare-shading performance of KoolShade Type LSA makes it the ideal daylighting control for modern schools and hospitals. For example: in the year-round glare-shading of the 6-ft. windows you see above, it would take a structural overhang of more than 13 ft. to do the job of Type LSA KoolShade.

• results

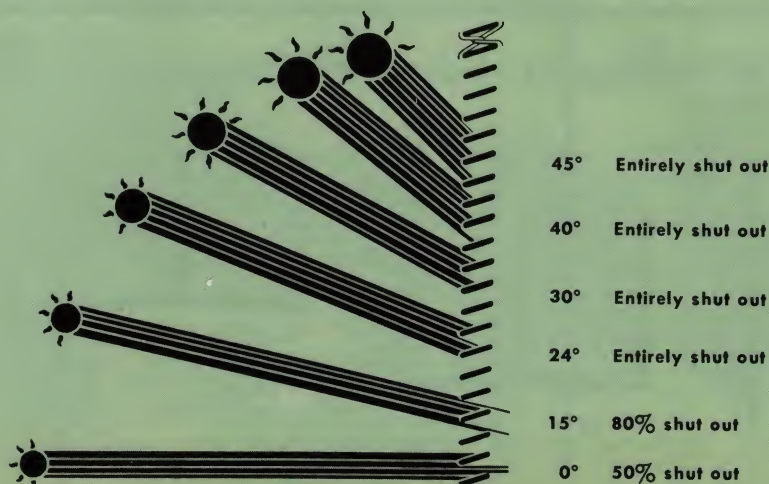


Net savings of \$50,300 was effected by this KoolShade installation at Savannah (Ga.) Memorial Hospital. Installed as adjunct to complete air conditioning system, 7,430 sq. ft. of KoolShade produced a cooling load reduction of 74 tons. Resulting savings in initial tonnage alone was \$50,300.



As much as 76% better lighting balance has been reported in classrooms glare-shaded by KoolShade. In school after school, the screening out of harsh sunlight by KoolShade has resulted in reduced fall-off, proper brightness ratios, improved daylighting. Above: Woodrow Wilson High School, Portland, Ore.

Sun Angles vs. KoolShade Type LSA



Improved appearance afforded by application of KoolShade is evident in these before and after photos of the Los Angeles County Engineers Building. Here, use of KoolShade screens cut air conditioning requirements by 72 tons. Net savings (over and above the cost of the KoolShade): \$13,300.

Custom-framed in genuine

• KoolShade framing

A vital factor in the high efficiency of KOOLSHADE SUNSCREEN is the use of genuine KOOLFRAME Framing Materials. Designed exclusively for use with KOOLSHADE, the framing members illustrated at left (and keyed to the actual-size cross sections you see at the right) insure proper installation.

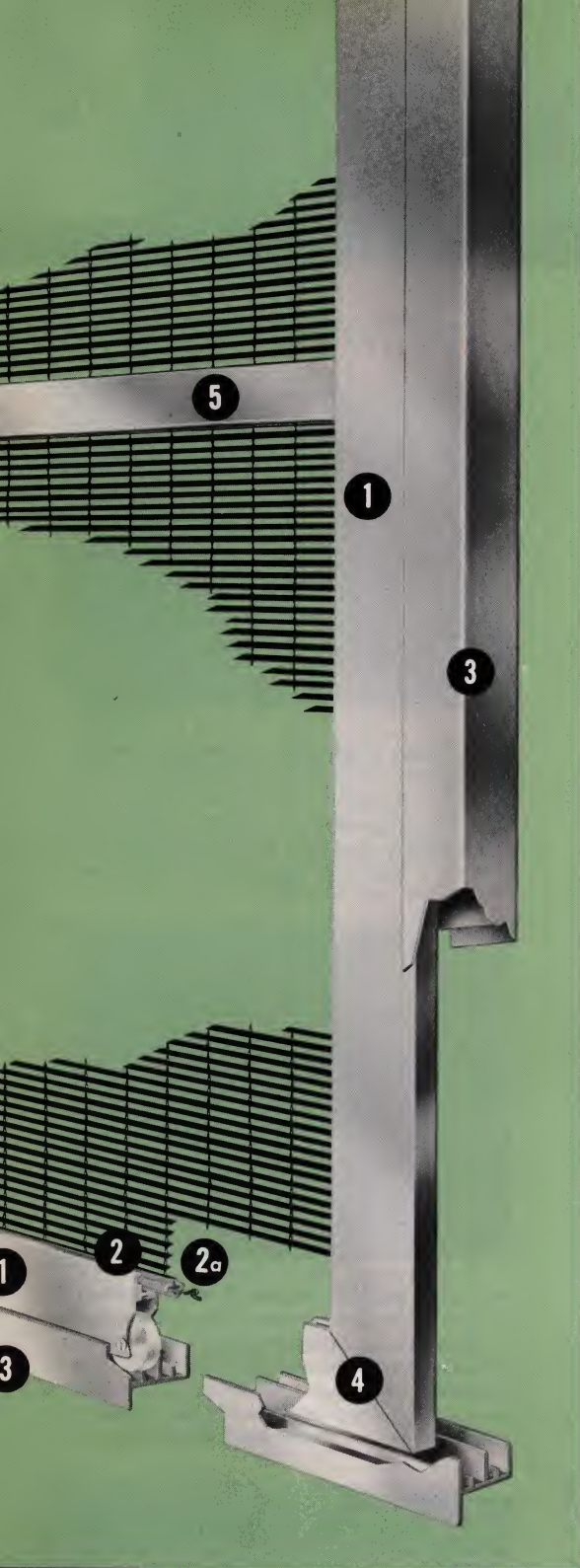
For utmost durability and performance, all KOOLFRAME extrusions (1) are made of heavy-duty aluminum. Design is such that the KOOLSHADE cloth is literally *suspended* within the framing member (see 2) and held under exactly the right tension at all times. Accomplished by means of a specially-designed lacer wire (No. 402) used in top and bottom members, this eliminates the need of bending or crimping the KOOLSHADE cloth. Hence, there's no distortion of louvers, no fracturing of vertical wires.

As an extra precaution against possible electrolysis, the KOOLSHADE cloth (nubelon coated) is encased in a specially-designed KOOLSHADE spline (2a). Made of chemclad vinyl, this spline provides an insulating barrier between the aluminum framing and the KOOLSHADE cloth itself. The Nos. 104, 105 and 106 chemclad spline serve the additional purpose of providing a firm anchorage of the cloth within the side framing members.

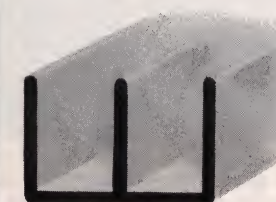
Other factors contributing to proper KOOLSHADE installation include special KOOLSHADE track (3), the unique KOOLFRAME corner post design (4), and the specially designed KOOLFRAME bracing members (5). Together, all of these framing and installation components work one with another to give you the exceptional efficiency, beauty and long life for which KOOLSHADE is noted.

Note: Details showing varied types of KOOLSHADE installations—including top-hung, side-hinged, sliding and roller applications, etc.—will be furnished on request. Write KOOLSHADE Dept. S., Reflectal Corporation, 200 So. Michigan Ave., Chicago 4, Illinois.

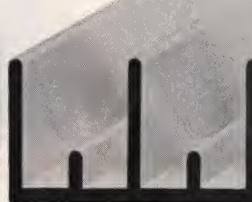
IMPORTANT—All illustrations shown on these pages are actual-size cross sections suitable for tracing. (Isometric lines, where added to cross sections, are provided only for clarification.)



③ KoolShade tracks . . . for rolling or sliding installations



No. 302 double track
for Nos. 300 and 303 rails



No. 319-L 1/2"
sill roller track
for Nos. 304, 307
and 309 rails

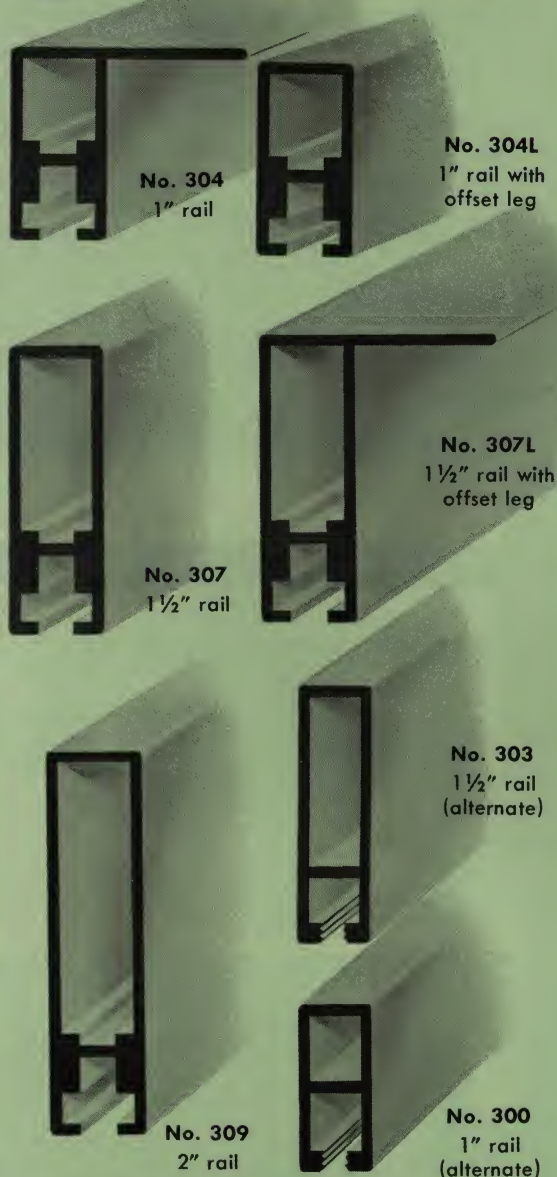


No. 320-1 1/4" double track
for Nos. 304, 307 and 309 rails



No. 325 double
offset track
for Nos. 304, 307
and 309 rails

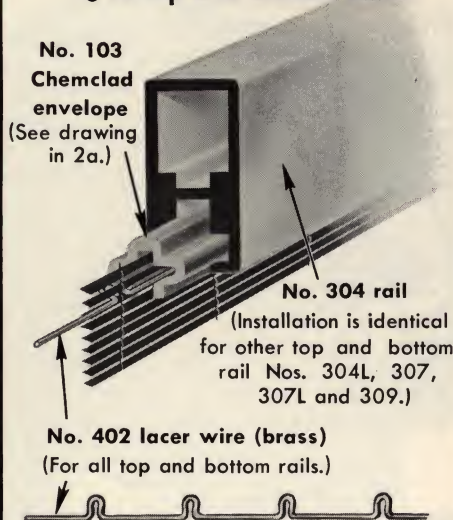
1 framing extrusions



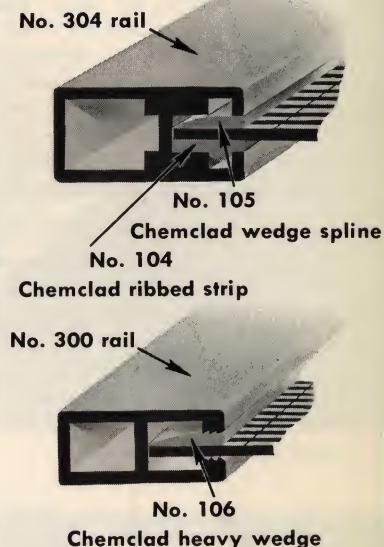
* Trademark

2 Installation of "cloth"

• in top and bottom rails

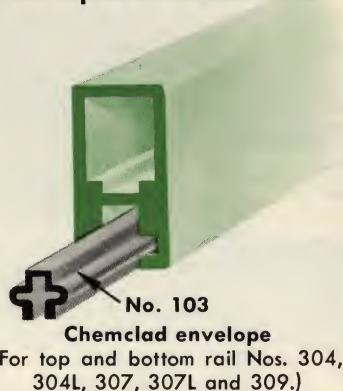


• in side rails



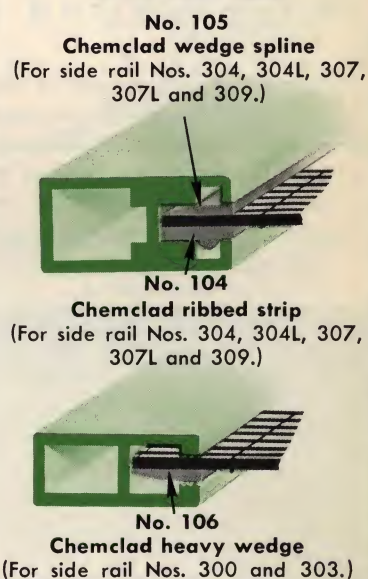
2a insulating spline

• for top and bottom rails



Note: Insulating spline is not used in top and bottom rail Nos. 300 and 303.

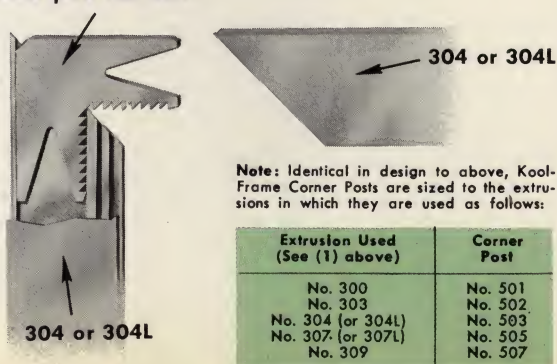
• for side rails



4 corner assembly

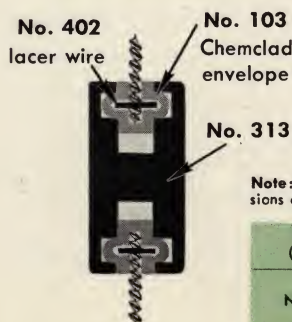
(Section shown is 1/2 actual size)

Corner post No. 503

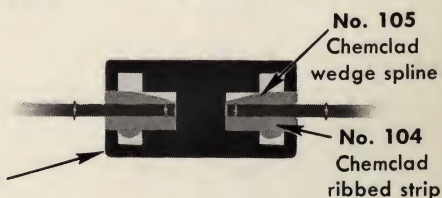


5 bracing members

Horizontal brace



Vertical brace



Note: Bracing members shown above should be used where screen dimensions exceed the limits for each extrusion as shown below:

Extrusion Used (See (1) Above)	Maximum Width without Bracing	Maximum Height without Bracing
No. 300	36"	72"
No. 304 (or 304L)	48"	72"
No. 303	54"	84"
No. 307 (or 307L)	60"	90"
No. 309	84"	96"

• specifications

Solar Screens

All Solar Screens shall be fabricated from KOOLSHADE SUNSCREEN cloth Type _____ as manufactured by the Reflectal Corporation and _____ and _____ (fabricating distributor)

shall be placed in KOOLFRAME extruded aluminum frames designed by Reflectal Corporation exclusively for KOOLSHADE SUNSCREEN cloth by above named franchised distributor for the Reflectal Corporation. All screens shall be completely rewirable and shall provide an electrolysis barrier between the bronze screen cloth and the aluminum framing member. The size of the frame and the dimension of the extrusions shall be as detailed. Installation of the Solar Screens shall be by a franchised distributor of the Reflectal Corporation, and workmanship shall be in accordance with our recommendation and approved by the architect.

KoolShade Sunscreen Cloth—Type RB

Shall be of a louvered type Bronze Cloth as manufactured by the Reflectal Corporation. The louvers shall be fabricated from bronze, set at an angle of approximately 17 degrees, spaced approximately 17 per inch, 0.005" thick and 0.048" in width. The louvers shall be held in place by bronze warp wire spaced vertically on one-half inch centers. All KOOLSHADE SUNSCREEN cloth after manufacturing shall receive a coating inert to normal weathering conditions.

KoolShade Sunscreen Cloth—Type LSA

Shall be of a louvered type bronze cloth as manufactured by the Reflectal Corporation. The louvers shall be fabricated from bronze, set at an angle of approximately 17 degrees, spaced approximately 23 per inch, 0.005" thick and 0.048" in width. The louvers shall be held in place by a bronze warp wire spaced vertically on one-half inch centers. All KOOLSHADE SUNSCREEN cloth after manufacturing shall receive a coating inert to the normal weathering conditions.

KoolFrame Extruded Aluminum Frames

Insulating Rail—The framing members shall be of extruded aluminum alloy as designed by Reflectal Corporation exclusively for KOOLSHADE cloth. The extrusion throat tolerances shall be such to receive Reflectal's chemclad vinyl envelope which encases the specially-designed lacer wire to afford an insulating barrier between the KOOLSHADE cloth (nubelon coated) and the framing member. The extrusion shall be of the general type and dimensions as detailed.

Fabrication and Installation

Shall be by franchised distributors of KOOLSHADE SUNSCREEN in accordance with recommendation of the manufacturer and as approved by the architect.

• Franchised distribution

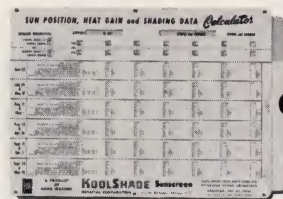
KOOLSHADE SUNSCREEN is sold only through authorized distributors, selected and franchised by Reflectal Corporation. Chosen on the basis of technical background and experience, each distributor is a sun-conditioning specialist, well qualified to assist you in all phases of modern solar control.

From the accurate diagnosis of sun problems . . . to competent engineering service; from the honest estimating of costs . . . to the careful fabrication of your screens themselves; from the installation of the KOOLSHADE . . . to expert advice on maintenance and care: for all these services and more, you can rely on your nearby KOOLSHADE distributor.



Free design assistance

provided by your franchised KoolShade Distributor can help you achieve unique architectural effects, as well as overcoming any unusual problems of design that may be encountered.



Sun position, heat gain and shading data calculator—

Complete solar data compiled in a convenient slide chart for immediate reference. Inserts available for four different latitudes providing readings at any window orientation in any season. Offered at nominal charge, this is an invaluable tool for architects, engineers, and other air conditioning and daylighting authorities. Write for details.

FRANCHISED DISTRIBUTORS IN ALL PRINCIPAL CITIES

Consult your yellow pages or write Reflectal at the address shown below



REFLECTAL CORPORATION

A subsidiary of Borg-Warner Corp.

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